Extron Electronics

INTERFACING, SWITCHING AND DISTRIBUTION

MATRIX 3200 & 6400 SERIES SWITCHERS

230 MHz (-3 dB) bandwidth

Sizes from 16 x 8 to 64 x 64

Triple-action switching

Easy to use LCD front panel controller (FPC 1000)

Remote Control (MKP 1000 & MCP 1000)

Video genlock

Audio breakaway

Audio gain and attenuation per input

RS-232/RS-422 control

Simple Instruction Set (SIS™)

Security lockout

Rooming

SERVICE SUPPORT SOLUTIONS

APPLICATIONS

MATRIX 3200 SERIES SWITCHER

Extron's **Matrix 3200 and 6400 Series Switchers** are the answer for large scale routing applications that require up to 64 inputs and 64 outputs. With incomparable control from the front panel, remote keypad (MKP 1000), or remote control panel (MCP1000), the Matrix 3200 and 6400 switchers provide totally customizable and modular switching of S-Video, component, composite, RGsB, RGBS, RGBHV and two channel audio. With a bandwidth of 230 MHz (-3 dB) when fully

APPLICATIONS (Cont.)

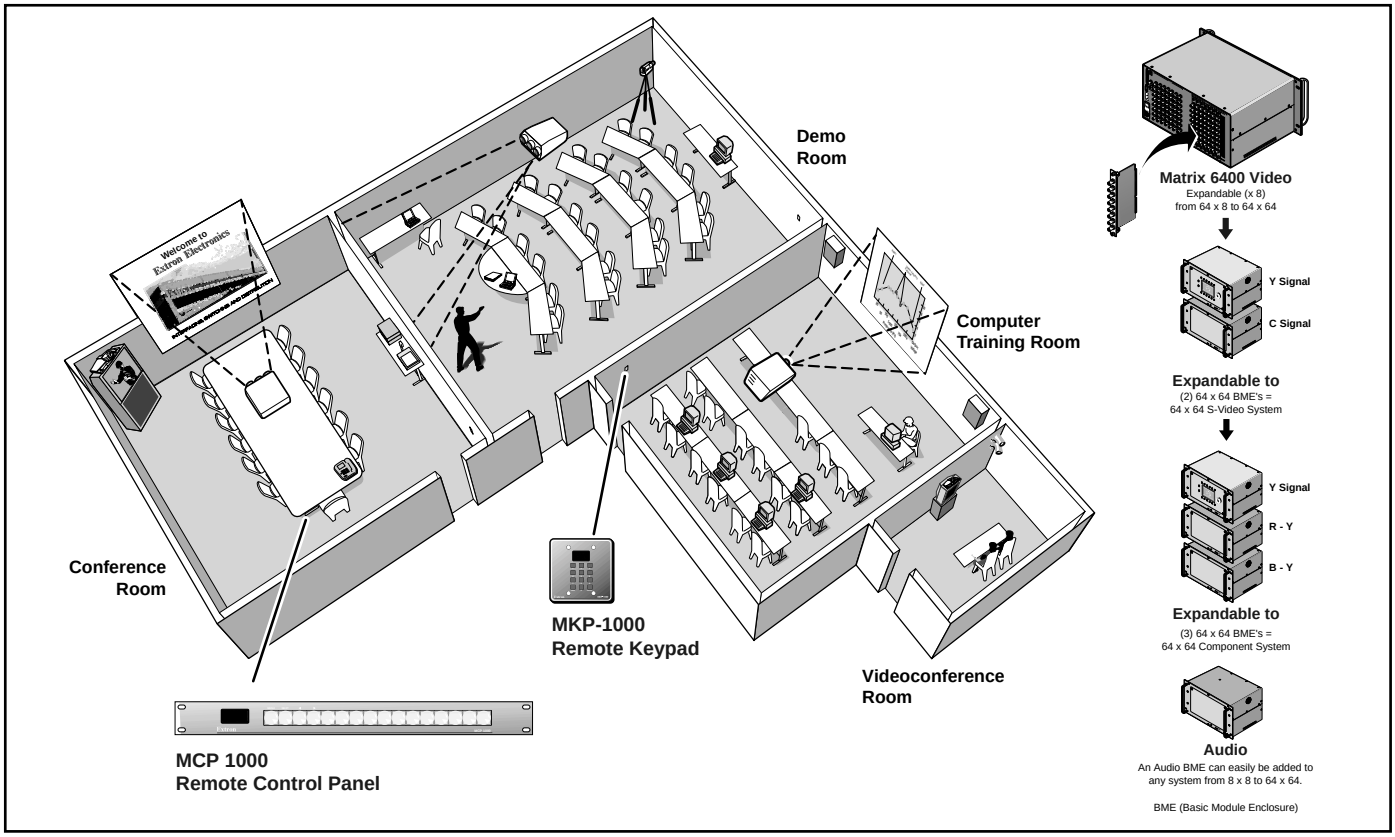
loaded, the Matrix 3200 and 6400 Series can maintain the integrity of any routed signal.

The series includes 64 x 64 and 32 x 32 configurations of Wideband, Low Resolution Video, Sync and Audio models. Each model allows for 16 x 8 switching with the flexibility to upgrade to full 32 x 32 or 64 x 64 routing applications. With 128 BNC connectors on the rear panel and modular internal busing card slots ready to be filled as needed, the Matrix 6400 switchers will grow to accommodate any system.

Rooming Presets and Virtualization

Using a feature called "rooming", each Matrix 3200 and 6400 switcher can be programmed to group multiple outputs to specific "rooms", allowing them to have their own presets. Each room can consist of up to 16 outputs and each matrix can support up to 10 rooms. A total of 100 room presets are available, providing unrivaled flexibility and convenience, particularly in systems where switching is required between several locations. Once a room has been configured, presets may be stored and recalled for that particular room without effecting the rest of the switcher.

Virtual mapping makes it possible to configure the switchers in


Demo Room
Computer Training Room
Conference Room
MKP-1000 Remote Keypad
Videoconference Room
MCP 1000 Remote Control Panel
Matrix 6400 Video
Expandable (x 8) from 64 x 8 to 64 x 64
Y Signal
C Signal
Expandable to
(2) 64 x 64 BME's = 64 x 64 S-Video System
Y Signal
R - Y
B - Y
Expandable to
(3) 64 x 64 BME's = 64 x 64 Component System
Audio
An Audio BME can easily be added to any system from 8 x 8 to 64 x 64.
BME (Basic Module Enclosure)

EXPANDABILITY AND CONTROL FOR THE FUTURE

APPLICATIONS (Cont.)

unique ways, dictated by each virtual input/output, (i.e., the assignment of each individual connector), and each group of connectors (virtual plane). Extron's Windows® based virtualization/control software makes these configurations possible. The software easily translates the appropriate virtual map into the switcher's memory with minimal effort on the part of the installer.

Rooming presets go beyond normal matrix switching flexibility, which is offered with the Matrix 3200 and 6400 switchers as global presets. These global presets can be set to define configurations of specific inputs to any specific combination of outputs or to all outputs. Rooming presets and global presets can be programmed and recalled (activated) at the front panel or by remote.

The features are rounded out by a rack-mountable enclosure, an optional redundant power supply and triple-action switching which allows images to switch on a display cleanly, with no visible glitch at the instant the switch is made. These features and the modular design of the Matrix 3200 and 6400 Series make these switchers the best choice for large scale routing applications.

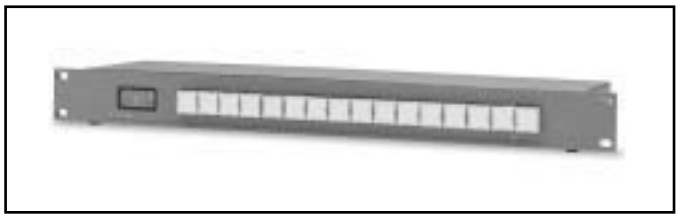
FPC 1000, MKP 1000, and MCP 1000

Controlling any system is easy with the Matrix 3200 and 6400 Series. The Front Panel Controller (FPC 1000) has a large LCD window that allows direct access and total control over all presets and switching functions. Menus in the FPC 1000 provide an intuitive interface for easy setup and programming. RS-232/ RS-422 control and programming is just as easy with Extron's Simple Instruction Set (SIS™).

MKP 1000 REMOTE

Additional remote control convenience may be provided by the MKP 1000 Remote Keypad and/or the MCP 1000 Remote Control Panel. The MKP 1000 mounts in a standard electrical wall box and allows complete remote control of the Matrix 3200 and 6400 Series Switchers. The keypad can be used to check the current input number and select a different input or preset. The programmable MCP 1000 features one-button crosspoint operation and one-button operation per preset. The MCP 1000 can be used to select a different input or preset and features a custom configuration mode as well. The rack-mountable MCP 1000 comes in a 1U enclosure with a 4.25" depth.

APPLICATIONS (Cont.)



MCP 1000

FEATURES

- **Bandwidth–** The Matrix 3200 and 6400 Wideband Series offer a true 230 MHz (-3 dB) bandwidth when fully loaded, assuring that the original signal integrity is maintained.
- **Modular design–** The Matrix 3200 and 6400 Series Switchers provide the highest level of cost-effectiveness, flexibility and expandability by allowing users to purchase only the modules required for their systems. Additional modules may be added at any time without having to send the unit back to the factory for expansion or application change.
- **Redundant power supply–** An additional power supply may be internally mounted to give the Matrix 3200 and 6400 Series Switchers a backup power supply. This feature is necessary in critical applications where power reliability is a crucial factor.
- **Triple-action switching–** The Matrix 3200 and 6400 Series Switchers are capable of programmable RGB delay on every output. This allows for "blanking" of the RGB signal when switching multiple inputs/outputs. When switching, all projectors/monitors will display black instead of a scrambled image.
- **Rooming–** Using a feature called "rooming", each Matrix 3200 and 6400 switcher can be programmed to group multiple outputs to specific "rooms", allowing them to have their own presets. With 10 presets per room for a total of 100 rooming presets, the Matrix 6400/3200 Series switchers allow superior flexibility and control in routing signals.
- **Presets–** The Matrix 3200 and 6400 Series Switchers can be configured for several different applications without the need for changing the settings each time the application changes. Thirty-two global presets and 100 rooming presets (10 presets for each of 10 rooms) are available.
- **LCD Front Panel Controller (FPC 1000)–** The optional FPC 1000 allows for easy configuration of inputs and outputs, as well as the control of additional system MCP 1000 features.
- **MKP 1000 Remote Keypad–** The Matrix 3200 and 6400 Series Switchers can be controlled from remote locations or

FEATURES (Cont.)

rooms using the MKP 1000 Remote Keypad. The keypad mounts in a standard electrical wall box and can be configured to control room presets, inputs and global presets. They are powered by the host matrix Basic Modular Enclosure (BME) for easy wiring and setup.

- **MCP 1000 Remote Control Panel–** The MCP 1000 can be used to select different inputs, room presets, and global presets. Encased in a 1U enclosure with a 5" depth, the MCP 1000 features one-button crosspoint operation and one-button operation per global or room preset. The MCP 1000 also features a custom configuration mode that allows the user to configure each button with any RS-232 Simple Instruction Set (SIS™) code.
- **Video genlock–** All Matrix 3200 and 6400 Series Switchers include broadcast quality NTSC/PAL/ SECAM video genlock capabilities which allow for vertical interval switching, resulting in smooth, seamless transitions when switching between inputs.
- **Balanced or unbalanced audio–** The Matrix 3200 and 6400 Series offers the flexibility for both balanced or unbalanced audio signals. Depending on the application and cable distance requirements, some systems will require balanced audio.
- **Adjustable audio gain/attenuation–** Extron's Matrix 3200 and 6400 Series Switchers allow users to set the level of audio from front panel controls or RS-232/422, whether for gain or attenuation.
- **Complete audio breakaway–** With "breakaway" switching, the Matrix 3200 and 6400 switchers can separate the audio signal from the video signal to switch either video only or audio only. The breakaway feature allows audio follow on any one or all channels, or can be operated as a separate audio matrix.
- **Extron's Virtualization/Control software–** Extron has developed control software based on a Windows® program that provides the ability to mix and match input to output. This program, shipped with every Matrix 3200 and 6400 Series Switcher, makes I/O configuration simple because it uses graphic icons and icon labeling capabilities. More importantly, the software also allows users to configure the switcher before using it via an emulation mode. Once the matrix is built with the software and the configuration saved, the switcher is ready to operate.
- **Input and output connectors–** All connectors are clearly labeled as either inputs or outputs for easy installation. And with Extron's virtualization/control software, a visual map can be printed for easy representation of the virtual I/Os. This feature halves the time required for setup and programming.
- **RS-232/RS-422 control–** The Matrix 3200 and 6400 Series Switchers offer RS-232/RS-422 control which allows the switcher to be controlled via a third party control system. Extron's SIS™ used for RS-232/422 control, is easy to learn, easy to use and allows the user to generate characters directly from a keyboard. If you've configured one Extron product with SIS, you've configured them all.
- **Simple Instruction Set (SIS™)–** Extron's SIS™ is a set of basic ASCII code commands which provide simple control through a third party control system. Instead of programming in long, obscure strings of code, the SIS makes it easy to operate an Extron product using RS-232 control.
- **SmartControl™ microprocessor–** Known as SmartControl, the switcher has the ability to determine how many inputs and outputs are being utilized and practically configures itself for ease of use in such applications.
- **Trouble status indication (SmartControl)–** The SmartControl microprocessor within the CPU of the Matrix 3200 and 6400 Series Switchers acts as a status indicator at all times and with FPC 1000 the installer can monitor RS-232/422 communications from and to the unit. This saves valuable time in troubleshooting.
- **Security lockout–** If a Matrix 3200 and 6400 Series Switcher is installed in a secure environment where easy access is not desirable, an optional password feature can be implemented. When this feature is in use, a password is required to operate the front panel controller.
- **Rack mountable–** The Matrix 3200 and 6400 Series Switchers are rack-mountable in any conventional 19" rack using hardware that comes with the switcher.

SPECIFICATIONS

Wideband BME

Input

- Connectors ..... BNC female
- Nominal signal level ..... 1 V p-p (1.5 V p-p maximum)
- Bandwidth ..... 230 MHz (-3 dB) fully loaded, < +2 dB and > 0 dB from 0 to 130 MHz
- Impedance ..... 75 ohms
- Return loss ..... -30 dB at 5 MHz

Output

- Connectors ..... BNC female
- Gain ..... Unity
- Impedance ..... 75 ohms
- Return loss ..... -25 dB to input section up to 50 MHz
- DC offset ..... ± 10 mV typical
- Slew rate ..... >200 V/µS

Low resolution video BME

Input

- Connectors ..... BNC female
- Bandwidth ..... 0 - 30 MHz, > ± .5 dB
- Impedance ..... 75 ohm
- Level ..... .5 to 1.5 V p-p (1 V p-p normal)
- Differential gain ..... < .1%
- Differential phase ..... < .1º
- External sync ..... .3 - 5 V p-p Genlocking into 75 ohm (RS170A)

Output

- Connectors ..... BNC female
- Gain. ..... Unity
- Impedance ..... 75 ohm
- Level ..... 1 V p-p nominal
- Return loss ..... -40 dB to input section 3.58/4.43
- DC offset ..... ± 10 mV max
- Slew rate ..... > 200 V/µS

Sync BME

Input

- Connectors ..... BNC female
- Frequency range ..... 15 - 150 kHz horizontal 30 - 150 Hz vertical
- Impedance ..... Inputs 1 - 16 switchable, 510 or 75 ohm Inputs 17 - 64, 510 ohm only
- Level ..... 0.5 to 5 V p-p (4 V p-p normal)

Output

- Gain ..... AGC to TTL level (4 - 5 V p-p)
- Impedance ..... 75 ohm

Audio BME

Input

- Type ..... Up to 64 inputs in increments of 8 stereo, balanced or unbalanced
- Connectors ..... 3.5 mm captive screw terminal, 5 conductor
- Impedance ..... Balanced: 12 k ohm, DC coupled Unbalanced: 24 k ohm, DC coupled
- Maximum level ..... +19 dBu
- CMRR ..... > 75 dB 20 Hz - 20 kHz

Throughput

- Routing. ..... 64 x 64 stereo matrix
- Response ..... ± .05 dB 20 Hz to 20 kHz
- Maximum channel gain .... 15.0 dB to +31.5 dB (input gain at max, balanced, output)
- THD + Noise. ..... 0.03% at 1 kHz; 0.3% at 20 kHz +15 dBu input, +21 dBu output balanced input and output
- S/N ..... > 90 dB, output +21 dBu balanced
- Adjacent input crosstalk .... > 65 dB typical at 20 kHz > 80 dB typical at 1 kHz > 80 dB typical below 60 kHz
- Stereo channel separation .. > 80 dB at 1 kHz > 60 dB at 20 kHz

Output

- Type ..... Up to 64 outputs in increments of 8 stereo, balanced or unbalanced
- Connectors ..... 3.5 mm captive screw terminal, 5 conductor
- Impedance ..... 50 ohms unbalanced; 100 ohms, balanced
- Gain ..... 0 dB, unbalanced +6 dB or 0 dB, balanced selectable per output
- Gain error ..... ±0.1 dB channel to channel
- Drive ..... +21.0 dBu balanced at stated % THD+N

Control system ..... RS-232 or RS-422
Serial control port ..... 9-pin female D connector
Baud rate ..... 9600 bps
Protocol ..... 8-bit, 1 stop bit, no parity
System intercommunications .. 2 - RJ45 connectors
Comm-link port ..... 2 - 5 mm 5-pin captive screw connectors
BME address number ..... 10 position thumb wheel (0 - 5, 0 = master)
Operating temperature range .. 0˚ C to 50˚ C
Storage temperature range ..... -40˚ C to +70˚ C
Humidity ..... 10% to 90%
Vibration ..... NSTA 1A in carton
MTBF ..... 30,000 hours (demonstrated)
Approvals ..... UL, CUL, CE
Power ..... 100 - 240 VAC, 50/60 Hz Internal, auto switchable
Dimensions (Matrix 3200) .... 8.75" H x 19" W x 14" D 22.2 x 48.3 x 35.6 cm
Dimensions (Matrix 6400) .... 12.25" H x 19" W x 14" D 31.1 x 48.3 x 35.6 cm
Warranty ..... Two years, parts & labor

SPECIFICATIONS (Cont.)

PART NUMBERS

Matrix 3200 and 6400 Part Numbers

WIDEBAND BASIC MODULE ENCLOSURES

The Matrix 3200 and 6400 Wideband series offer a true 230 MHz (-3dB) bandwidth when fully loaded, assuring that the original signal integrity is maintained.

PHYSICAL OUTPUTS	MATRIX 3200 WIDEBAND (5U) PHYSICAL INPUTS		MATRIX 6400 WIDEBAND (7U) PHYSICAL INPUTS			
	16x	32x	16x	32x	48x	64x
8	60-251-AA	60-251-BA	60-250-AA	60-250-BA	60-250-CA	60-250-DA
16	60-251-AB	60-251-BB	60-250-AB	60-250-BB	60-250-CB	60-250-DB
24	60-251-BC	60-251-DC	60-250-BC	60-250-DC	60-250-FC	60-250-HC
32	60-251-BD	60-251-DD	60-250-BD	60-250-DD	60-250-FD	60-250-HD
40	- - -	- - -	60-250-CE	60-250-FE	60-250-IE	60-250-LE
48	- - -	- - -	60-250-CF	60-250-FF	60-250-IF	60-250-LF
56	- - -	- - -	60-250-DG	60-250-HG	60-250-LG	60-250-PG
64	- - -	- - -	60-250-DH	60-250-HH	60-250-LH	60-250-PH

YOU MAY NEED MORE THAN ONE ENCLOSURE FOR MULTIPLE VIDEO PLANES

VIDEO BASIC MODULE ENCLOSURES

The Matrix 3200 and 6400 Video series offers 80 MHz (-3dB / >±0.5 dB) bandwidth for composite video, S-video, component video and HDTV applications. The units have video genlock capabilities which allow for vertical interval switching.

PHYSICAL OUTPUTS	MATRIX 3200 VIDEO (5U) PHYSICAL INPUTS	MATRIX 6400 VIDEO (5U) PHYSICAL INPUTS
	32x	64x
8	60-253-DA	60-252-HA
16	60-253-DB	60-252-HB
24	60-253-DC	60-252-HC
32	60-253-DD	60-252-HD
40	- - -	60-252-HE
48	- - -	60-252-HF
56	- - -	60-252-HG
64	- - -	60-252-HH

YOU MAY NEED MORE THAN ONE ENCLOSURE FOR MULTIPLE VIDEO PLANES

SYNC BASIC MODULE ENCLOSURES

The Matrix 3200 and 6400 Sync switchers are capable of handling AGC to TTL level sync for H/V, separate H and V. They are non-configurable in 32x32 and 64x64 sizes.

PHYSICAL OUTPUTS	MATRIX 3200 SYNC (5U) PHYSICAL INPUTS	MATRIX 6400 SYNC (7U) PHYSICAL INPUTS
	32x	64x
32	60-255-DD	- - -
64	- - -	60-254-PH

YOU MAY NEED MORE THAN ONE ENCLOSURE FOR MULTIPLE SYNC PLANES

AUDIO BASIC MODULE ENCLOSURES

The Matrix 6400 Audio switchers are fully configurable for 8x8 to 64x64 stereo audio (balanced or unbalanced). These units allow adjustable audio gain/attenuation of audio from the front panel controls (FPC 1000) or RS-232/422.

PHYSICAL OUTPUTS	MATRIX 6400 AUDIO (5U) PHYSICAL INPUTS							
	8x	16x	24x	32x	40x	48x	56x	64x
8	60-256-AA	60-256-BA	60-256-CA	60-256-DA	60-256-EA	60-256-FA	60-256-GA	60-256-HA
16	60-256-AB	60-256-BB	60-256-CB	60-256-DB	60-256-EB	60-256-FB	60-256-GB	60-256-HB
24	60-256-AC	60-256-BC	60-256-CC	60-256-DC	60-256-EC	60-256-FC	60-256-GC	60-256-HC
32	60-256-AD	60-256-BD	60-256-CD	60-256-DD	60-256-ED	60-256-FD	60-256-GD	60-256-HD
40	60-256-AE	60-256-BE	60-256-CE	60-256-DE	60-256-EE	60-256-FE	60-256-GE	60-256-HE
48	60-256-AF	60-256-BF	60-256-CF	60-256-DF	60-256-EF	60-256-FF	60-256-GF	60-256-HF
56	60-256-AG	60-256-BG	60-256-CG	60-256-DG	60-256-EG	60-256-FG	60-256-GG	60-256-HG
64	60-256-AH	60-256-BH	60-256-CH	60-256-DH	60-256-EH	60-256-FH	60-256-GH	60-256-HH

MATRIX 3200/6400 ACCESSORIES & PART NUMBERS

FPC 1000 (7U ENCLOSURE)	60-276-01	6400 SERIES STEREO AUDIO INPUT UPGRADE (8 INPUTS)	70-069-01
FPC 1000 (5U ENCLOSURE)	60-276-02	6400 SERIES STEREO AUDIO OUTPUT CARD (8 OUTPUTS)	70-070-01
MCP 1000M	60-298-01	7U ENCLOSURE POWER SUPPLY	70-083-01
MCP 1000S	60-298-02	5U ENCLOSURE POWER SUPPLY	70-083-02
MKP 1000 (GREY)	60-239-01	AUDIO POWER SUPPLY	70-084-01
MKP 1000 (BLACK)	60-239-02	MKP 1000 USER'S MANUAL	68-355-01
MKP 1000 (WHITE)	60-239-03	FPC 1000 USER'S MANUAL	68-355-02
3200 SERIES WIDEBAND INPUT UPGRADE (16 INPUTS)	70-082-01	MATRIX 6400 AUDIO USER'S MANUAL	68-355-03
6400 SERIES WIDEBAND INPUT UPGRADE (16 INPUTS)	70-081-01	MATRIX 6400/3200 VIDEO USER'S MANUAL	68-355-04
3200/6400 SERIES WIDEBAND OUTPUT UPGRADE (8 OUTPUTS)	70-067-01	16" BNC EXTRACTION TOOL	100-096-01
3200/6400 SERIES VIDEO OUTPUT UPGRADE (8 OUTPUTS)	70-068-01		

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